

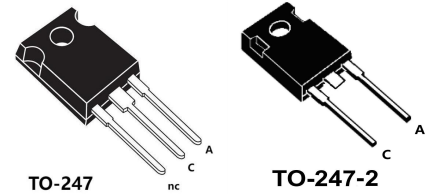
ESTF100SS60S/U

Ultra-Fast Soft Recovery Diode Module

Description

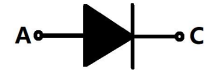
Ultra-FRD module devices are optimized to reduce losses and EMI/RFI in high frequency power conditioning electrical systems.

These diode modules are ideally suited for power converters, motors drives and other applications where switching losses are significant portion of the total losses.



Features

- ☞ Repetitive Reverse Voltage : $V_{RRM} = 600V$
- ☞ Low Forward Voltage Drop : $V_F(\text{typ.}) = 1.6V$
- ☞ Average Forward Current : $I_F(\text{AV.}) = 100A @ T_c = 100^\circ C$
- ☞ Ultra-Fast Reverse Recovery Time : $t_{rr}(\text{typ.}) = 120 \text{ ns}$
- ☞ Extensive Characterization of Recovery Parameters
- ☞ Reduced EMI and RFI
- ☞ Non Isolation Type Package



nc : Not connected

Applications

Motor Drives, Welding

Absolute Maximum Ratings @ $T_j = 25^\circ C$ (Per Diode)

Symbol	Parameter	Conditions	Ratings	Unit
V_{RRM}	Repetitive Peak Reverse Voltage		600	V
$V_{R(DC)}$	Reverse DC Voltage		480	V
$I_F(\text{AV})$	Average Forward Current @ $T_c = 25^\circ C$ @ $T_c = 100^\circ C$	Resistive Load	200 100	A A
I_{FSM}	Surge(non-repetitive) Forward Current	One Half Cycle at 60Hz, Peak Value	1400	A
I_t^2	I_t^2 for Fusing	Value for One Cycle Current, $t_w = 8.3ms$, $T_j = 25^\circ C$ Start	8.13×10^3	A^2s
T_j	Junction Temperature		-40 ~ 150	$^\circ C$
T_{stg}	Storage Temperature		-40 ~ 150	$^\circ C$
P_d	Maximum Power Dissipation		390	W
-	Mounting Torque	Recommended (M3)	1.1	N.m
-	Weight		6	g

Thermal Characteristics

Symbol	Parameter	Conditions	Values			Unit
			Min.	Typ.	Max.	
$R_{th(j-c)}$	Thermal Resistance	Junction to Case	-	-	0.35	°C/W

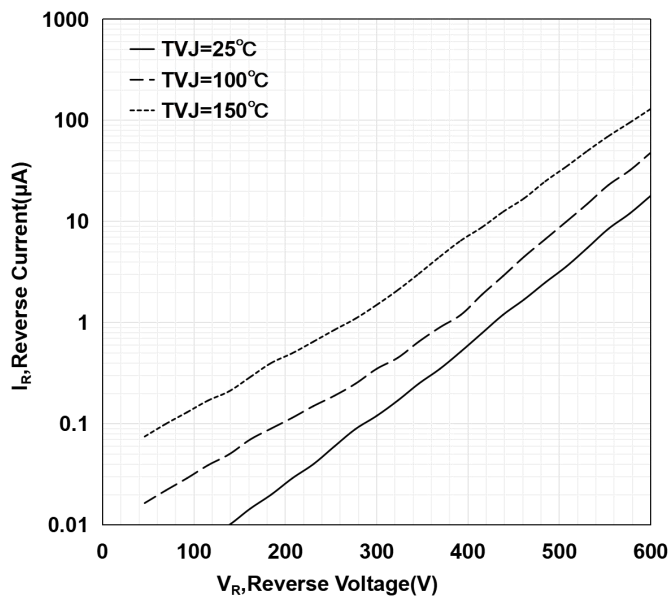
Electrical Characteristics @ $T_J=25^{\circ}\text{C}$ (unless otherwise specified)

Symbol	Parameter	Conditions	Values			Unit
			Min.	Typ.	Max.	
V_R	Cathode Anode Breakdown Voltage	$I_R = 100\mu\text{A}$	600	-	-	V
V_{FM}	Maximum Forward Voltage	$I_{FM} = 100\text{A}$, $T_c = 25^{\circ}\text{C}$	-	1.6	1.9	V
		$I_{FM} = 100\text{A}$, $T_c = 100^{\circ}\text{C}$	-	1.4	-	V
I_{RRM}	Repetitive Peak Reverse Current	$T_c = 100^{\circ}\text{C}$, V_{RRM} applied	-	-	1.0	mA
t_{rr}	Reverse Recovery Time	$I_{FM} = 100\text{A}$, $V_R = 400\text{V}$ $di/dt = -1200\text{A}/\mu\text{s}$ $T_c = 25^{\circ}\text{C}$	-	120	160	ns
		$T_c = 100^{\circ}\text{C}$	-	160	-	ns

Order Codes

Order codes	Silkscreen	Package	Packaging
ESTF100SS60S	F100S60	TO-247	
ESTF100SS60U	F100SS60U	TO-247-2	

Forward Characteristic(typ.)



The drawing illustrates the mechanical specifications of a TO-247 package. It includes three views: a top view, a side view, and a front view.

- Top View:** Shows the package footprint with dimensions: 15.49 / 16.26 (width), 20.80 / 21.46 (height), 4.32 / 5.49 (lead spacing), 5.38 / 6.20 (lead height), 19.81 / 20.32 (total height), 1.65 / 2.39 (lead width), 2.59 / 3.43 (lead thickness), 5.46 (lead pitch), and 3X 1.00 / 1.40 (lead length).
- Side View:** Shows the package profile with dimensions: 4.70 / 5.31 (width), 1.50 / 2.49 (height), 0.38 / 0.89 (lead thickness), 2.21 / 2.59 (lead length), and 4.5Max (lead height).
- Front View:** Shows the package front with dimensions: 13.46 Min (width), 0.51 / 1.35 (height), 6.15BSC (lead spacing), 13.08 Min (lead length), and 3.56 / 3.66 (lead width).

The package is labeled **TO-247** in a blue box.

